

Instructions for CRMEP 09/01/09 Draft POST-TREATMENT Checklist IN – INSTREAM HABITAT & BANK RESTORATION

May be used for features with dual goals of instream habitat restoration and bank stabilization

Y = Yes, the question applies and the answer is yes, comment if needed. **P** = Partially, the question cannot be answered definitively yes or no, comment suggested. **N** = No, the question applies and the answer is no, comment if needed. **D** = Don't know, the answer is unknown and cannot be found; preferable to blank. **A** = Not applicable, the question or sub-question does not apply to the feature.

See Manual Part III for guidance. See below for 3-letter code key; see glossary for definitions.

THE SAME TREATMENT AREA THAT WAS DEFINED DURING THE PRE-TREATMENT EVALUATION MUST BE CONSIDERED WHEN COLLECTING THE FOLLOWING DATA. CONFIRM THAT THE FEATURE LOCATION WAS SUFFICIENTLY DESCRIBED USING THE PROTOCOL FOR DOCUMENTING THE LOCATION OF HABITAT RESTORATION FEATURES. USE LOCATION DOCUMENTATION UPDATED DURING IMPLEMENTATION MONITORING AS NEEDED.

Questions pertain to the instream FEATURE.

1. Measure the meander length of stream habitat improved.
2. Measure the length of streambank stabilized. If the feature was not intended to stabilize the bank, enter A.
3. Specify the current structural condition of feature: *EXCL* = (Excellent) The treatment is intact and structurally sound. *GOOD* = the treatment is intact and generally sound but some wear or undermining is evident. Components may have shifted slightly, but the treatment is intact. *FAIR* = the treatment position or condition has been altered significantly. *POOR* = the treatment is visible but has suffered significant movement or damage. *FAIL* = (Failed) The treatment is not visible or remnants are not in any form of designed configuration. (To be better defined)
4. Refers to visual evidence of structure malfunction or lack of structural integrity.
 - a. Enter all that apply. Explain problems in comments.
5. Refers to location of the structure linearly in the channel, the lateral position of the structure in the channel and the orientation of the structure in relation to stream channel.

HABITAT questions should be answered regardless of goals.

6. Level II habitat type in treatment area. If the feature area is on a side channel at the time of evaluation, enter the level II habitat type and OTH with a comment.
7. Measure the residual water depth to the tenth of a foot for *all* habitat types, not just pools. This is the maximum water depth in the treatment area, even if it is not at the structure, minus the depth of the nearest downstream tail crest. For habitat types other than pools, this may be a significant distance from the treatment area. Record in the comments the approximate location of maximum depth (e.g. Max. at base of LBK bedrock.).
 - a. Follow instructions above, but measure maximum residual depth created by the structure. Include approximate location of maximum depth in comments (e.g. 3 feet DNS of weir apex or UPS of scour log). If it is the same as the maximum depth in the 16a, record same depth for both questions to indicate the maximum depth in the treatment area is associated with the structure.
8. If changing habitat type was a goal (see pre-project checklist question #4(PreQ 4)), compare current habitat type to targeted habitat type (PreQ 4a) to determine if the habitat type change was achieved. If it was not a goal, enter A.
9. Consider pre-treatment site conditions (PreQ 2). Document *any* unintended affect, detrimental or beneficial e.g. if the feature caused a pool to become flatwater or if creating a pool was not a goal but the feature unexpectedly created a pool.
10. If increasing maximum residual water depth was a goal (PreQ 5), compare current maximum residual water depth associated with the structure (PostQ 7a) to pre-treatment residual water depth (PreQ 3) to determine if residual water depth was increased in the treatment area because of the feature. If it was not a goal, enter A and do not answer sub-question.
 - a. Refer to PreQ 5a to determine if the depth equal to or greater than the targeted residual pool depth. If not specified at pre-treatment, enter D.
11. Consider pre-treatment site conditions (PreQ 3). Document in the comments *any* unintended affect, detrimental or beneficial e.g. if the feature caused a pool to fill or although not a goal, the feature unexpectedly caused a pool scour.

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SHELTER questions pertain to features intended to affect instream shelter. Collect baseline data regardless of goals.

12. Use Table 1 to the right to determine the shelter complexity value in the treatment area.
13. Estimate the percent of the targeted treatment area covered by instream shelter using DFG habitat typing methods.
14. Enter both the 1st and the 2nd dominant shelter component in the proposed treatment area (e.g. BUB / LWD).
15. If increasing instream shelter rating was a goal (PreQ 9), compare current shelter rating (PostQ 12 x 13) to pre-treatment shelter rating (PreQ 6 x 7) to determine if shelter rating was increased in the treatment area. If it was not a goal, enter A and do not answer sub-question.
 - a. Did the feature create or exceed the minimum targeted shelter rating (PreQ 9a)? If not specified, enter D.
16. Count the amount of large woody debris in the targeted treatment area in the two specified size classes. The first entry is for logs with a diameter of at least one foot that are between 6 and 20 feet in length, the second for logs with a diameter of at least one foot that are over 20 feet in length (e.g. enter 1 / 4).
17. If increasing LWD count was a goal (PreQ 11), compare current LWD count to pre-treatment LWD count (PreQ 10) to determine whether LWD count was increased. If it was not a goal, enter A and do not answer sub-question.
 - a. Consider the origin of all LWD currently at the feature and in the treatment area. Enter all that apply.

Table 1. Instream Shelter Complexity Value Examples
(DFG Restoration Manual pg III-43)

Value 0

- No shelter.

Value 1

- One to five boulders
- Bare undercut bank or bedrock ledge
- Single piece of large wood (>12" diameter and 6' long) defined as large woody debris (LWD)

Value 2

- One or two pieces of LWD associated with any amount of small wood (<12" diameter) defined as small woody debris (SWD)
- Six or more boulders per 50 feet
- Stable undercut bank with root mass, and less than 12" undercut
- A single root wad lacking complexity
- Branches in or near the water
- Limited submersed vegetative fish cover
- Bubble curtain

Value 3

Must have a combination of at least 2 of the following cover types:

- LWD/boulders/root wads
- Three or more pieces of LWD combined with SWD
- Three or more boulders combined with LWD/SWD
- Bubble curtain combined with LWD or boulders
- Stable undercut bank with greater than 12" undercut, associated with root mass or LWD
- Extensive submersed vegetative fish cover

SUBSTRATE questions should be answered regardless of goals.

18. Enter the 1st and then the 2nd dominant substrates in the treatment area (e.g. GRV/COB). For channel spanning structures, record the dominant substrate upstream of the structure.
19. If change in substrate composition was a goal (PreQ 13), compare current substrate composition to targeted substrate composition (PreQ 13a) to determine whether that goal was met. If it was not a goal, enter A.
20. Compare current conditions in the vicinity of the treatment area to pre-treatment conditions (PreQ 12). Determine if there were any detrimental or beneficial effects on substrate composition that were not specified in goals. If Y, explain in comments, e.g. if the feature caused silt to accumulate on or be washed away from spawning gravel.

CHANNEL questions should be answered regardless of goals.

21. List all channel problems near the treatment area, not at a stream or reach level. List all that apply. Record problems even if they are irrelevant to the project goals.
22. If improving channel conditions was a goal (PreQ 15), compare current conditions to pre-treatment condition (PreQ 14) to see if condition specified in PreQ 15a were achieved.
 - a. List all targeted channel conditions achieved as a result of the feature.
23. Compare current conditions in the vicinity of the treatment area to pre-treatment conditions (PreQ 14). Determine if there were any detrimental or beneficial effects on channel conditions that were not specified in goals. If Y, explain in comments.

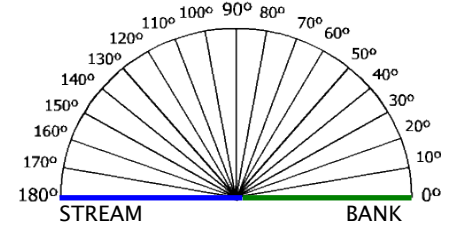
BANK questions should be answered regardless of goals.

24. Stream bank erosion or apparent instability caused or affected by the former barrier.

- a. Location of erosion or instability relative to the former barrier. Record location as upstream of, downstream of and/or within the barrier AND left and/or right bank determined looking downstream (e.g. DNS – LBK, RBK UPS – LBK WIN – LBK). Use comment space if needed.
- b. Determine using visual evidence and knowledge of land use and erosion processes.

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25. If listed as a goal, answer based on visual evidence using best professional judgment.
26. ***This question always applies; answer Y, N, D.*** Compare current conditions in the vicinity of the former barrier to pre-treatment conditions. Enter Y, if there were any detrimental or beneficial effects on substrate composition that were not specified in goals and explain in comments.
27. If improving streambank angle was a goal (PreQ 19), compare current bank angle
to pre-treatment bank angle (PreQ 18) to determine whether bank angle was reduced. If it was not a goal, enter A and do not answer sub-question.
 - a. The average bank angle at the proposed treatment site will be reported in departure from horizontal with 0° on the bank, regardless of which bank. A vertical bank is 90°. A 1:1 slope is 45°. A 1½ : 1 slope is 33.69°. And, a 2:1 slope is 26.65°. For undercut banks, also record the horizontal distance undercut to the tenth of a foot in the comments. Describe K. Vyverberg's folding rule/protractor method of bank measurement when available.
 - b. Is the current bank angle equal to or less than the targeted bank angle (PreQ 19a)? If not specified, enter D.



Effectiveness RATING is feature specific.

28. Rate the features effectiveness, not the structural condition. Keep in mind the degree to which it met the specific goals. (To be better defined)
 - EXCL = (Excellent) the project feature is performing according to objectives.
 - GOOD = there are some deficiencies in the projects feature's performance, but it is still performing in a satisfactory manner.
 - FAIR = there are some deficiencies in the project feature's performance and, these may cause problems in the future. Some characteristics of the feature, although not enough to cause corrective action at this time, require further scrutiny.
 - POOR = the feature is not performing in a satisfactory manner. Remedial action is required.
 - FAIL = (Failed) the feature has completely failed to meet objectives and/or is causing deleterious effects of habitat.
28. Enter all that apply, give details in comments.
29. Y if the feature needs or deserves further restoration effort, N if the site doesn't need further restoration or is not suitable for restoration activity.

Code Key

AGG	Aggradation	FLO	Flow obstructions	OTH	Other
ANC	Anchor failure	FLT	Flatwater	POO	Pool
ANC	Anchored	FPD	Floodplain deposition	RBK	Right bank
BAR	Lack of stabilizing vegetation			REP	Repair
BBB	Buried by bedload	GRC	Grade control	RIF	Riffle
BED	Bedrock	GRV	Gravel	RPR	Riparian recruitment
BOL	Boulder	GRZ	Grazing/grazing animal	RTW	Rootwad
BRD	Braiding	HDC	Headcut	SCU	Side cutting
BUB	Bubble curtain	HYD	Hydrologic processes		
CNR	Concentrated runoff	INC	Incision	SHF	Structure shifted
COB	Cobble	INT	Intercepted	SIN	Sinuosity
CRF	Cable/rebar failure	LBK	Left bank	SLC	Silt/clay
DNS	Downstream	LWD	Large woody debris	SND	Sand
DRY	Dry	MAT	Structure material failure	STB	Stability
EMG	Emergent groundwater	MIG	Migration	STR	Stranded out of active channel (horizontally)
ENH	Enhancement	MNT	Maintenance	STT	Straightening
EXC	Excavated	NAR	Narrowing		
EXH	Exhumed	NON	None		

SWA	Stranded out of water (vertically)
SWD	Small woody debris
TOG	To grade
UCB	Undercut bank
UNA	Unanchored
UND	Undercut/undermined
UNS	Undersized/under-built
UPS	Upstream
USG	Unstable soils/geology
VEG	Vegetation
WID	Widening
WIN	Within
WSH	Washed out